More problems:

1. How many unique ways can you arrange the letters in the word EMBEDDED?
2. If you have five friends A, B, C, D, E sitting in a row at a movie theater, how many ways can they be seated so that B is *not* sitting immediately to the right of C?
3. How many numbers can you come up with using the numbers 1-7 for a 7-digit number?
4. How many numbers can you come up with using the numbers 1-7 for a 7-digit number if you use the numbers only once?
5. A club has 8 male and 8 female members. The club is choosing a committee of 6 members. The committee must have 3 male and 3 female members. How many different committees can be chosen?
6. If a polygon has 42 sides, how many diagonals does it have?
7. How many 7-digit phone numbers can be made under the following conditions:(First digit cannot be 0 or 1 because you'll get the operator or long distance.)
   1. The first two digits are 3 followed by 6
   2. The third digit is even
   3. The fourth digit is greater than 5
   4. The fifth and seventh digits are odd
   5. The sixth digit is 2
8. In a class of 10 students, how many ways can a club of 4 students be chosen?
9. Over the weekend, your family is going on vacation, and your mom is letting you bring your favorite video game console as well as five of your games. How many ways can you choose the five games if you have 12 games in all?

Answers:

1.  2. 5! – 4! 3. 77 4. 7! 5. 

6.  (you do not count the outside edges)

7. a. 1\*1\*105 b. 8\*5\*105 c. 8\*4\*105 d. 8\*52\*104 e. 8\*1\*105

8.  9. 

Venn Diagram Problems

1. **Coach Krutch offered to buy hot dogs for players on his team. Of the 44 players, 28 wanted ketchup, 20 wanted mustard, 14 wanted relish, 10 wanted ketchup and mustard, 11 wanted ketchup and relish, 8 wanted mustard and relish and 6 wanted all three condiments.**
2. Of the 25 baseball players on the Baltimore Orioles 2005 roster, 17 threw right handed, 12 were over 30 years old, and 9 threw right handed and were over 30 years old. How many players on the team neither threw right handed nor were over 30 years old?
3. The principal noticed that 45 students earned A's in English, 49 students earned A's in math, and 53 students earned A's in Science. Of those who earned A's in exactly two of the subjects, 8 earned A's in English and Math, 12 earned A's in English and science, and 18 earned A's in Math and Science. Seventeen earned A's in all three subjects. How many earned A's in English only?